

REMARKS

Claims 36, 52 and 58 have been further amended to state that the claimed catalyst system consists essentially of palladium, silver, an alkali metal or an alkali metal-containing compound, a selectivity enhancer selected from the group consisting of lead, bismuth, thorium, gallium, tin, antimony, germanium, arsenic, cadmium, mercury, and combinations of two or more thereof, and an inorganic support selected from the group consisting of silica, alumina, spinel, and combinations of two or more thereof. The "consisting essentially of" language has been added to point out that there are components essential to the operation of the claimed catalyst. Claims 36, 41-54, 58 and 62-67 remain in the application for examination.

Applicants' claims now set out processes for the selective hydrogenation of unsaturated hydrocarbons in a hydrocarbon-containing stream employing a catalyst composition having as essential components: palladium, silver, an alkali metal or an alkali metal-containing compound, a selectivity enhancer selected from the group consisting of lead, bismuth, thorium, gallium, tin, antimony, germanium, arsenic, cadmium, mercury, and combinations of two or more thereof, and an inorganic support selected from the group consisting of silica, alumina, spinel, and combinations of two or more thereof.

Claims 36, 47, 49, 50, 52, 53, 58 and 65 have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sarrazin *et al.* (5,364,998). This rejection of the amended claims is respectfully traversed.

Language has been previously amended into the independent claims 36, 52 and 58 from their dependent claims 37-38, 55-56 and 59-60, respectively, to create thereby claims that contain language that was not found to be rejectable over Sarrazin *et al.* (5,364,998). Particularly, Applicants point to the presence of (1) silver and (2) an alkali metal or alkali metal-containing compound as a component of their catalyst. Applicants urge that the previously amended claims which called for the presence of these same components using "comprising" language distinguished over the disclosure of Sarrazin *et al.* which does not disclose these components in their catalyst. Applicants, therefore, respectfully request the removal of the rejection of claims 36, 47, 49, 50, 52, 53, 58 and 65 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sarrazin *et al.* (5,364,998).

Claims 36, 43, 49, 50, 52, 53, 58 and 66 have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Trinh Dinh *et al.* (4,504,593). This rejection of the amended claims is respectfully traversed.

Language has been previously amended into the independent claims 36, 52 and 58 from their dependent claims 37-38, 55-56 and 59-60, respectively, to create thereby claims that contain language that was not found to be rejectable over Trinh Dinh *et al.* (4,504,593). Specifically, Applicants point to the presence of (1) silver and (2) an alkali metal or alkali metal-containing compound as a component of their catalyst. Applicants urge that the previously amended claims which called for the presence of these same components using “comprising” language distinguished over the disclosure of Trinh Dinh *et al.* which does not disclose these components in their catalyst. Applicants, therefore, respectfully request the removal of the rejection of claims 36, 47, 49, 50, 52, 53, 58 and 65 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Trinh Dinh *et al.* (4,504,593).

Claims 36-46, 49-53, 55-64 and 66 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404). This rejection of the amended claims is respectfully traversed.

Cheung *et al.* 5,475,173) is cited as disclosing a hydrogenation process in which a catalyst containing palladium, silver and alkali metal on an inorganic base is employed. This disclosure, as cited, does not disclose Applicants’ selectivity enhancers. Lindlar *et al.* (3,715,404) is cited for the disclosure of a general teaching that the art recognizes “that lead, bismuth, cadmium, tin, thorium and or mercury enhance the activity of palladium catalysts which are utilized in selective hydrogenation processes”, but this enhancement is cited as known only for “compounds having triple bonds in their structure or quinones having a double-bond-containing side chain” (see column 1, line 12 *et seq.*). Applicants urge that Lindlar *et al.* (3,715,404) does not disclose (A) what can be expected in the enhancement of catalytic activity of palladium by the addition of these metals in selective hydrogenation processes also in the presence of silver and alkali metal or (B) what can be expected in the enhancing ability of silver and/or alkali metal when used with palladium if another material such as one or more of the metals of Lindlar *et al.* is added to the catalyst mix. Those skilled in the art know that the old saw, “obvious to try, is not obvious”, applies. In the case of the number of multiple components set out in Applicants’ claims, it is

doubtful that the combination of the teachings of this art would even make the addition of the metals of Lindlar *et al.* "obvious to try". Applicants, therefore, respectfully request the removal of the rejection of claims 36-46, 49-53, 55-64 and 66 under 35 U.S.C. 103(a) as being unpatentable over Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404).

Claims 54 and 67 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404) as applied to claims 36-46, 49-53, 55-64 and 66 above further in view of Collins (4,126,645). This rejection of the amended claims is respectfully traversed.

Applicants have pointed out above that claims of this application should not be rejected under 35 U.S.C. 103(a) over the combination of the disclosures of Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404). The Collins (4,126,645) disclosure adds nothing to supplement the basic deficiency of the combination of the disclosures of Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404) as set out above. In fact, the Collins disclosure simply adds another disclosure that it is known that palladium can be deposited near the surface of a skin on an alumina support without regard to what the presence of other added materials might contribute or detract from the overall performance of a catalyst. Applicants, therefore, respectfully request the removal of the rejection of claims 54 and 67 under 35 U.S.C. 103(a) as being unpatentable over Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404) as applied to claims 36-46, 49-53, 55-64 and 66 above further in view of Collins (4,126,645).

Claim 48 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404) as applied to claims 36-46, 49-53, 55-64 and 66 above further in view of Sarrazin *et al.* (5,364,998). This rejection of the amended claims is respectfully traversed.

Applicants have pointed out above that claims of this application should not be rejected under 35 U.S.C. 103(a) over the combination of the disclosures of Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404). The Sarrazin *et al.* (5,364,998) disclosure adds nothing to supplement the basic deficiency of the combination of the disclosures of Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404) as set out above. In fact, the Collins disclosure simply adds another disclosure that it is known that palladium can be used in combination with gallium or indium in a hydrogenation catalyst without regard to what the presence of other added materials

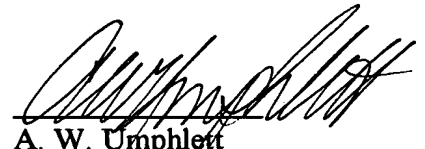
might contribute or detract from the overall performance of the catalyst. Applicants, therefore, respectfully request the removal of the rejection of claim 48 under 35 U.S.C. 103(a) as being unpatentable over Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404) as applied to claims 36-46, 49-53, 55-64 and 66 above further in view of Sarrazin *et al.* (5,364,998).

It is requested that the filing of a terminal disclaimer to overcome the provisional obviousness-type double patenting rejection of claims 36, 41, 43-46, 49, 58, 64, and 66 be held in abeyance until patentable subject matter is found in the claims of this application.

In view of the amendments and remarks above it is respectfully requested that the rejection of claims be reconsidered and all the claims, as amended, be found allowable.

Respectfully submitted,

ROPER & QUIGG



A. W. Umphlett  
Registration No. 25,935

AWU:aes  
ROPER & QUIGG  
Three Crystal Park  
2231 Crystal Drive, Suite 410  
Arlington, VA 22202  
Telephone (703) 920-8910